British Food

What role should UK producers have in feeding the UK?

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British Food: What role should UK producers have in feeding the UK?

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CHAPTER 1
Introduction: Food systems under pressure

Over all future timescales, from short to long term, there are challenges facing our food systems. The growing human population and the rapidly increasing global middle class create increasing demands for the production of food.

Agriculture, in recent decades, has responded through both growing more food per unit area (intensifying) and by expanding the area farmed (extensifying), principally by converting natural or semi-natural grasslands and forests to fields, as well as expanding wild-caught fisheries and aquaculture to provide seafood. In the process of intensifying, significant damage has been done to soils[1] and other natural resources (Westhoek et al. 2016), as well as to terrestrial and marine ecology, undermining the long term ability to continue growing production in the way we have.

Against this background of increasing demand, and growing pressure on the environment to deliver, the climate is changing. Whilst climate change is often seen as a 'long term and gradual' issue, it brings with it change in the weather, including more intense rainfall, heat, droughts and storms. The incidence of extreme weather is demonstrably increasing (Hansen, et al. 2012). 'Extreme weather' may include the sort of bad weather places have experienced in the past, but worse, it may also include rapid shifts in weather patterns, so that truly unprecedented events occur.

[1] 30% of the world's soils are now degraded, according to The Status of the World's Soil Resources (2015). http://www.fao.org/documents/card/en/c/c6814873-efc3-41db-b7d3-2081a10ede50/


CLIMATE CHANGE HAS ALMOST CERTAINLY
CONTRIBUTED TO AFFECTING OUR FOOD
SUPPLY WITH THE INCREASE IN 'EXTREME
WEATHER' DROUGHTS, EXTREME HEAT,
EXTREME STORMS AND UNPRECEDENTED
WEATHER EVENTS.

FOOD SYSTEM UNDER PRESSURE

Factors putting food supply under pressure include:

- Increased population creating increasing demands on food production which has led to intensified agriculture.
- Climate change leading to an increase in 'extreme weather' – droughts, extreme heat, extreme storms and unprecedented weather events.
- Reliance on the global trading of goods: events around the world can create food price spikes and affect our access to the imported food on which we rely.

UK EXPORT AND IMPORT OF FOOD AND AGRICULTURAL PRODUCE

£18bn

Food & agricultural produce exported

£39bn

Food & agricultural produce imported

There is some evidence that global weather systems that can influence extreme events are also changing – like El Nino (Cai et al. 2014) or the jet stream (Coumou et al. 2014) – so a 'bad year' in one place may be a bad year in other places too.

Since the Second World War, and especially in the last three decades, the global trade of goods has rapidly increased, supporting global economic development. Food is no exception to this, and nowadays, the global food system is highly complex and interconnected, with every country in the world dependent, to a greater or lesser extent, on trade to fulfil its overall requirements for food (MacDonald, et al. 2015, Puma et al. 2015). Globalisation has significant benefits, both in terms of access to goods that can be grown more efficiently and cheaply elsewhere, or foods – especially fruit and vegetables – that we cannot grow, or we can only grow in the summer. In a stable world, it makes complete sense to grow the few things we are really good at growing, export what we can, and import what we cannot grow so well. This is 'comparative advantage' and a central tenet of economic theory.

Comparative advantage (coupled with a range of policy levers to underpin production), drive the scale, and concentration, of production – so that some areas become 'bread baskets' for the rest of the world. This in turn leads to efficiencies and price reduction. In this way, our globalised system provides cheaper food for all. It also allows countries where the agricultural economy is a major part of the national economy to export and benefit from this. However, we will argue that these benefits do not come without risks and raise the question of whether there is a point at which we might call time on further integration of our food systems through trade, and seek to support greater consumption of locally produced food. ■

WE IMPORT MORE THAN WE EXPORT IN ALL TYPES OF FOOD.

WHERE OUR FOOD COMES FROM?

- We export £18bn of food and agricultural products and import nearly £39bn worth of food.
- UK farmers supplied just over half our food we ate in 2015 (52%).
- If the food we exported were consumed in the UK our self sufficiency ratio increases to 61% for food in general and 76% for only the sorts of food we'd typically be able to grow here.
- In total the EU supplies about a third of our food now, but Brexit is likely to change how much we pay for it in future.
- In 2011 UK imports of food came from 168 countries – 86% of countries supply us with food.
- 90% comes from just 24 countries including the Netherlands (5.9% of all our food), Spain (5.1%), France (3.3%), Irish Republic (3.2%) and Germany (2.6%).
- Many of the countries important for providing us with food (Spain, South Africa, Egypt and India) are already water-stressed.

90% OF THE UK FOOD SUPPLY COMES FROM JUST 24 COUNTRIES INCLUDING:

5.9%	5.1%	3.3%	3.2%	2.6%
Netherlands	Spain	France	Irish Republic	Germany

CHAPTER 2
The food we eat: where is it sourced?

Where does the food we consume in the UK come from?

In the UK we spend[2] £201bn on food (of which catering services accounts for about £88bn). We export £18bn of food and agricultural products, and import nearly £39bn of food – £8bn of agricultural products, £17bn of lightly processed food and £15bn of highly processed food. In 2011 British imports of food came from some 168 countries around the world – 86% of countries supply us food!

Based on the value of agricultural products leaving the farm, UK farmers supplied just over half (52%) of our food in 2015. This 'self-sufficiency ratio' varies with the type of food: we typically eat home grown eggs, meat and dairy products (over 80% comes from the UK), mainly eat home grown cereals (62%) but only 23% of our fruit and vegetables come from the UK. If the food we exported were consumed in the UK, our self-sufficiency ratio increases to 61% for food in general, and 76% if we consider only the sorts of food we'd typically be able to grow here (e.g. wheat, meat, dairy, root vegetables).

However, the food we import comes from a wide range of countries. Just 24 countries supply 90% (of the value of food we buy); the largest suppliers being in the EU. The Netherlands supply 5.9% of all our food, Spain 5.1%, France 3.3%, the Irish Republic 3.2% and Germany 2.6%, for example. In total, the EU supplies about a third of our food.

IN TOTAL THE EU SUPPLIES ABOUT A THIRD OF UK FOOD.

We import more than we export in all types of food (other than 'drink' which is dominated by Scotch whisky exports). The difference between imports and exports is largest for vegetables, where we import £9.1 billions' worth and export £1 billions' worth, giving a trade gap of £8bn. The second largest category where we have a large trade deficit is in meat – even though we eat a lot of UK produced meat, owing to its high value, what we import costs £5.9bn.

To provide the food we import takes land, water and energy, and creates an environmental footprint. For the crops we, or our livestock, consume, 70% of the land area and 64% of its total greenhouse gas emissions is overseas (de Ruiter et al. 2016). Further analysis (de Ruiter et al, in press), incorporating grassland used for pasture indicates the UK food footprint is about 55% local, primarily due to grazing land. Overall, 85% of the UK's total land footprint is associated with meat and dairy production, which contribute 48% of our total protein consumption and 32% of our total calories.

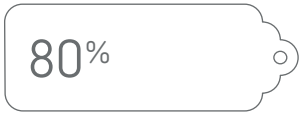
The environmental footprint may seem relatively unimportant but we'll illustrate why it might be with reference to the water used to grow food. A green bean (such as may be imported from Kenya) requires about a bucket full of water to produce, and a kilo of beef, 11 tonnes of water (rain to water the grass and produce the food on which it feeds during its life). Each day, on average, a UK consumer requires 2.4 tonnes of water to grow their food (Hess et al. 2015). Much of this is rainwater for grass and crops, but more water from rivers, wells or taps is used for our food (whether in irrigation or processing) than is used in the home each day. Today, many of the countries important for providing us with food (notably Spain, South Africa, Egypt and India) are already water-stressed, and are likely to become more so in the future. ■

[2] Data here come from Defra's Food Statistics' Pocketbooks e.g. 2016: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/553390/foodpocketbook-2016report-rev-15sep16.pdf

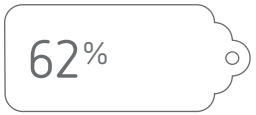
DOES IT MATTER IF THE UK IS SELF SUFFICIENT?

- Our globalised food system concentrates food production in a few 'breadbaskets'. Climate change is increasing the risk of 'multiple breadbasket failure' e.g. through severe drought.
- The transport of goods are also subject to weather changes and can be disrupted by the failure of infrastructure (e.g. ports), labour disputes, civil unrest and wars.
- Political events in 2016, such as Brexit and the election of President Trump have brought more uncertainty.
- The globalised trading system can absorb small events but when they are big or interact it may falter or even fail.

UK FARMERS SUPPLIED JUST OVER HALF OUR FOOD IN 2015 (52%).



80% of the key home-grown products – eggs, meat and dairy – we eat comes from the UK.



62% of cereals we eat comes from the UK.

Only 23% of our fruit and vegetables we eat come from the UK.

CHAPTER 3
Is more food trade a good idea?

Does it matter if the UK is self-sufficient and in particular what are the contemporary uncertainties that might affect the choice and affordability of overseas-sourced food?

Our global trading system provides access to food and other resources from all around the world. It is governed by sets of rules (set by the World Trade Organisation) and agreements between nations about how much 'tax' or tariffs they will impose on each other's goods under a trading agreement.

The production and transport of goods themselves are subject to the vagaries of weather (especially important in agriculture) and can be disrupted by failure of infrastructure (e.g. ports), labour disputes, civil unrest and wars – which may block transport routes, for example.

The breadth of our global system means that when something goes wrong, somewhere in the world, there is normally a smooth response as the system adapts to shortfalls in production, prices rise and send a signal, and supplies are diverted from elsewhere. However, sometimes, big events, or a combination of smaller events, interact to amplify the price signals and sometimes to induce panic that can send prices up very quickly in a price spike. In the last 10 years we had two price spikes – the first, and most severe, was sparked by two things. The US implemented a biofuels policy that diverted maize production into ethanol and this, coupled with high oil prices, meant farmers were profitably growing crops but they weren't for food. The second thing that happened was that Australia suffered a drought, and yields were impacted. Prior to harvest, the global market expected a shortfall in supply, and, at the same time, the worldwide stocks of food (which are expensive to keep, and governments are winding down all over the world) reached record lows. ▸

WHERE THE UK IMPORTS FOOD FROM

With little 'back up supply' from stocks, and lower production than expected, the global market took fright and prices increased rapidly. As prices increased, governments around the world imposed export bans, to ensure their populations had enough food, this reduced the global trade supply and prices went up even more. Whilst we in the UK felt price rises as rapid food inflation, in some import-dependent countries, food prices rose so far that 'food riots' broke out – including some in North Africa which helped ignite the Arab Spring (Lagi et al. 2011, Berazneva and Lee 2013, Homer-Dixon et al. 2015).

The next food price spike in 2010-11, had similar anatomy, but the spark was a very hot summer in 2010 that depressed yields in Eastern Europe. This heatwave was made significantly worse through climate change, recent studies have shown (Watanabe et al. 2013). At the same time, this weather contributed to a long drought in Syria, leading to migration from rural localities to the cities that may have played a part in the start of the civil war (Kelley et al. 2015).

These descriptions illustrate the 'systemic risk' associated with a globalised trading system. Whilst some shocks can be absorbed by the system others cannot. The reason is that whilst corrective forces might pull the system back to stability in some circumstances, in others these forces work in the opposite direction. The circumstances in which this might happen vary and include unusually large shocks or sometimes a combination of smaller shocks which interact with one another (Homer-Dixon et al. 2015). The instability which results impacts heavily on parts of the world that literally depend on food trade for their daily bread, but they also affect our ability to source food at prices we can afford.

Analysis of purchases[3] following the 2007/8 food price spike show a complex pattern of changes in response to food price increases: as prices increased, overall UK households bought 4.2% less food. They also traded down to save money, by buying cheaper alternatives. ▸

[3] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/183302/foodpocketbook-2012edition-09apr2013.pdf

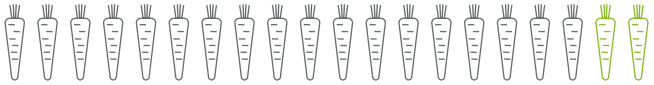
Despite buying less, and trading down, average households spent 12% more in 2011 than 2007. But the worst impact was on the poorest 10%: the poorest people spent 17% more in 2011 compared to 2007, so their relative food bill increased by 40% more than average.

The future sees the possibility for the systemic risks to increase. Climate change is driving more frequent and severe extreme weather,[4] environmental degradation, coupled with climate change, around the world risks compromising the ability of areas that traditionally supply food to do so in future (Schauberger et al. 2017), as well as their ability to act as a natural buffer to shocks. Furthermore, two political events of 2016 create uncertainty in the ability of the trading system itself to absorb shocks. The British Referendum to exit the EU (Brexit) is likely to lead to a significant reconfiguration of UK trade relationships, with great uncertainty as to how they will play out over the next decade. The election of President Trump likewise suggests the potential for unstable relationships, as Trump, in his inaugural address on Jan 20th 2017 implied he would dismantle trade pacts and replace them with deals that are 'protectionist' of US interests. As President Xi Jinping of China said on Jan 19th, it is in no one's interest to have trade wars, but increasingly protectionist policies are likely to threaten their outbreak.

The systemic risks of globalised supply chains is not simply in rapid changes in food price and therefore the availability and affordability of food. It is also in food authenticity. If prices rise suddenly, it creates opportunities to substitute cheaper ingredients for more expensive ones, 'cut corners' or even conduct deliberate food fraud.[5] We have seen this with 'horsegate', mislabelling of fish and adulteration of a range of spices in recent years. The 'cutting corners' may lead to increased microbiological hazards by using material that should have been discarded (such as peanuts from contaminated stores which prompted the biggest food recall ever in the US[6]).

Another consequence of our globalised food system has been an increased reliance on a smaller number of food crops. Global trade promotes efficiency of production through specialisation. As a result, we now have a global food system based on a handful of crops (over 60% of the world's calories come from three crops, and over 85% from eight) (Cassidy et al. 2013). Increasingly, we all eat similar diets (Khoury et al. 2014) – which are heavy in calories (from starch, sugar and fats) and low in nutrients. Globally, over 50% of the world's population is not of a 'healthy weight'. The poorest anywhere still struggle to get sufficient calories and are underweight, but in our rich countries, poverty often does not stop people being able to eat (and drink) calories, but it does stop them having a nutrient-rich diet. The reduced biodiversity in our cropping systems also increases the risks resistance emerging in pests, diseases and weeds through natural selection. ■

THE DIFFERENCE BETWEEN IMPORTS AND EXPORTS IS BIGGEST FOR VEGETABLES.



£9.1bn
We import £9.1bn worth

£1bn
We export £1bn worth

[4] GFS report Extreme Weather and Food System Resilience
http://www.foodsecurity.ac.uk/assets/pdfs/extreme-weather-resilience-of-global-food-system.pdf

[5] Food Standards Agency. Food Crime Annual Strategic Assessment 2016.
https://www.food.gov.uk/sites/default/files/fsa-food-crime-assessment-2016.pdf

[6] http://edition.cnn.com/2014/09/19/us/peanut-butter-salmonella-trial/

THE BENEFITS OF LOCAL PRODUCTION

Globalised trade drives efficiency and lowers price. Reliance on trade is a double edged sword: cheaper food trades off against the risk of the trading system breaking.

The potential benefits of relying more on UK production include:

- Resilience – access to locally produced goods to buffer interruptions to trade – whether currency fluctuations, transport disruption, or production disruption.
- Trust – 'farm to fork' transparency and traceability.
- Quality – locally governed welfare and quality standards.
- Supporting UK land economy and countryside.

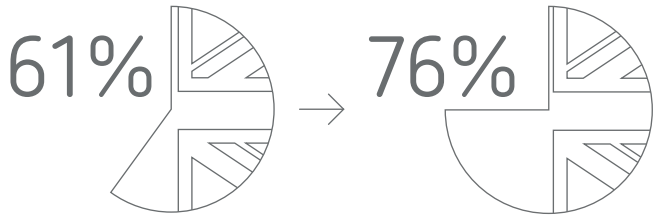
CHAPTER 4
The benefits of more local production

If there are risks with too much trade, are there benefits with more local production?

As described above, over the last decades, comparative advantage, in combination with supporting policy, has driven the scale and concentration of production, greater technical efficiency and cheaper prices.

The globalised food trade is highly complex, and this concentration of production and complexity create a systemic risk. One of the lessons that economics has learned from the financial crisis, is that complex systems, with humans in them, do not always behave predictably when they are shocked. As a consequence, we must acknowledge that there is trade-off between trade induced efficiency and the risk of systemic failure in the event of a shock.

IF THE FOOD WE EXPORTED WERE CONSUMED IN THE UK



The UK self sufficiency ratio increases to 61% for food in general and 76% for only the sorts of food we'd typically be able to grow here.

If the systemic risks of trade-integration is 'one side of the coin', we can also examine the other: if we relied more on UK production, what might the potential benefits be? Many of the potential benefits are associated with the attributes UK production can potentially offer, though these attributes are currently not well recognised in the market price.

These include:

- Growing resilience: in the event of interruptions to trade (whether from currency fluctuations, disrupted trade relationships, disruption to logistics of transporting goods – such as loss of ports to east coast storm surges, or disruption to production elsewhere in the world), we would already have access to a range of locally produced goods. If there was a major interruption to trade, it would otherwise take time to diversify and grow new products.
- Shorter supply chains help create trust: with more local supply chains, there is scope for more 'farm-to-fork' integration. This would allow greater transparency and traceability of our food, both of which can create trust in the food. It can also stimulate greater efficiency.
- International trade is sometimes seen as producing food to the 'lowest common denominator' because many attributes – such as animal welfare and environmental standards – are not evident in the product itself. Locally produced food can be grown to standards of quality and welfare that are locally governed and fit local needs and wants.
- Supporting the local land economy. The countryside – and all that it does, from the cultural value of what it looks like, via the biodiversity it supports, the role it has in maintaining water supply, as well as many people's livelihoods – can be supported and shaped by ensuring there is a market for the goods that farmers produce.

These potential benefits are typically of most value to people in the UK; they do little to influence the demand for British produce globally. It is therefore key to explore how British consumers respond to some of these issues. ■

WHAT DO CUSTOMERS THINK?

- An Omnibus survey showed 67% would prefer to buy British with the remainder expressing no preference.
- Even if imported food went down in price post Brexit, making British food relatively more expensive, 27% of respondents say they would buy more locally produced food and 51% said they'd buy the same.
- Recent reports show consumer understanding of the challenges facing the food system is low, but when consumers learn about them, they often respond by saying they'd be willing to change their purchasing habits.

THE POSSIBLE EFFECTS OF IMPORTED FOOD POST BREXIT

Even if imported food went down in price post Brexit, making British food relatively more expensive, 27% of respondents say they would buy more locally produced food and 51% said they'd buy the same.

CHAPTER 5
Customer opinion

What do customers think about British and local food versus overseas-produced food?

A number of studies have addressed people's attitudes to buying food sourced locally. In January 2016, the UK's Global Food Security programme published a report from its 'Food Futures Panel'.[7] When asked what attributes were associated with British food, people cited high quality, then low environmental impact, then high animal welfare, availability, and, finally high cost.

When asked 'if two food products are available in a supermarket, one labelled as British and one not, which would you choose and why?' just under two thirds of respondents said that they would choose the British labelled product, suggesting strong support in principle for buying British. However, the majority of these respondents caveated their responses by saying their choice would also be influenced by other factors such as perceived value for money, quality and appearance as well as the type of product. The reasons given for choosing British focussed around four themes that reflect their stated associations with British food: a desire to support British farmers and the local economy, a perception of British produce being fresher and of higher (and reliable) quality, greater levels of trust in production standards (including animal welfare) and lower environmental impacts. The discussion in the report concludes 'respondents are likely to understand and identify food as 'British' if the purchase of it supports British farmers and local economies, and if it embodies values associated with 'Britishness' such as reliability, high standards of animal welfare and food safety'.

[7] http://www.foodsecurity.ac.uk/assets/pdfs/ff-buying-british.pdf

The last year has seen significant changes in the local and global political situation, and the uncertainty created has potentially changed attitudes. To test this, in January 2017, an Omnibus survey was conducted.[8] When asked whether, as a rule, consumers would prefer to buy British or imported food, two-thirds (67%) indicated they'd prefer to buy British, with almost all the rest (32%) saying they had no preference. If prices of imported food went up in future, 59% of consumers indicated they'd be likely to buy more British food with the others either likely to stay the same (32%), buy less (6%) or did not know. Even if food prices stay the same in future, respondents suggested that in response to Brexit, they are more likely to buy more British food (33%) or the same amount (62%), with 3% saying they're likely to buy less British food. Surprisingly, this survey also indicates that even if imported food went down in price as a result of Brexit, making British food relatively more expensive, 27% said they would buy more locally produced food, 51% said they'd buy the same, and only 17% said they'd be likely to buy less. This survey suggests, at least at the current time, in response to the UK withdrawal from the EU a significant portion – a quarter to almost two-thirds – of UK consumers, say they think they'd be likely to increase the amount of British food they will buy depending on how prices change, with over half (51-62%) saying they'd buy the same. These results, should, of course be treated with some degree of caution: attitudes may change with events, price, time and population segment, and attitudes and realised behaviour are not the same thing.

For those who said they'd buy more when British foods became relatively cheaper, the top four reasons – summing to 41% of the votes cast by the respondents – were in different ways to help the economy: to support the British farming economy (15%), the British economy (12%), the food manufacturing sector (7%) and the local economy (7%). Other reasons were quite uniformly favoured and included quality, sustainability, welfare, food miles, support for Brexit and a perception that local production supported better employment standards.

Conversely, for those who said they wouldn't buy more British food if the prices of imported food went up, the most highly cited reasons could be grouped into three: first, because British versions of the food weren't available (31%), and because they wanted food from elsewhere (19%); second, that British food was more expensive (30%), imported food was better value for money (17%), or better priced (11%) ; and, third, that they didn't agree with Brexit (22%) and wanted to show support for exporter countries (15%). Other reasons, all under 10% of reasons cited, include worse conditions for employees and welfare, and that British food is perceived as not as nice, healthy or trustworthy.

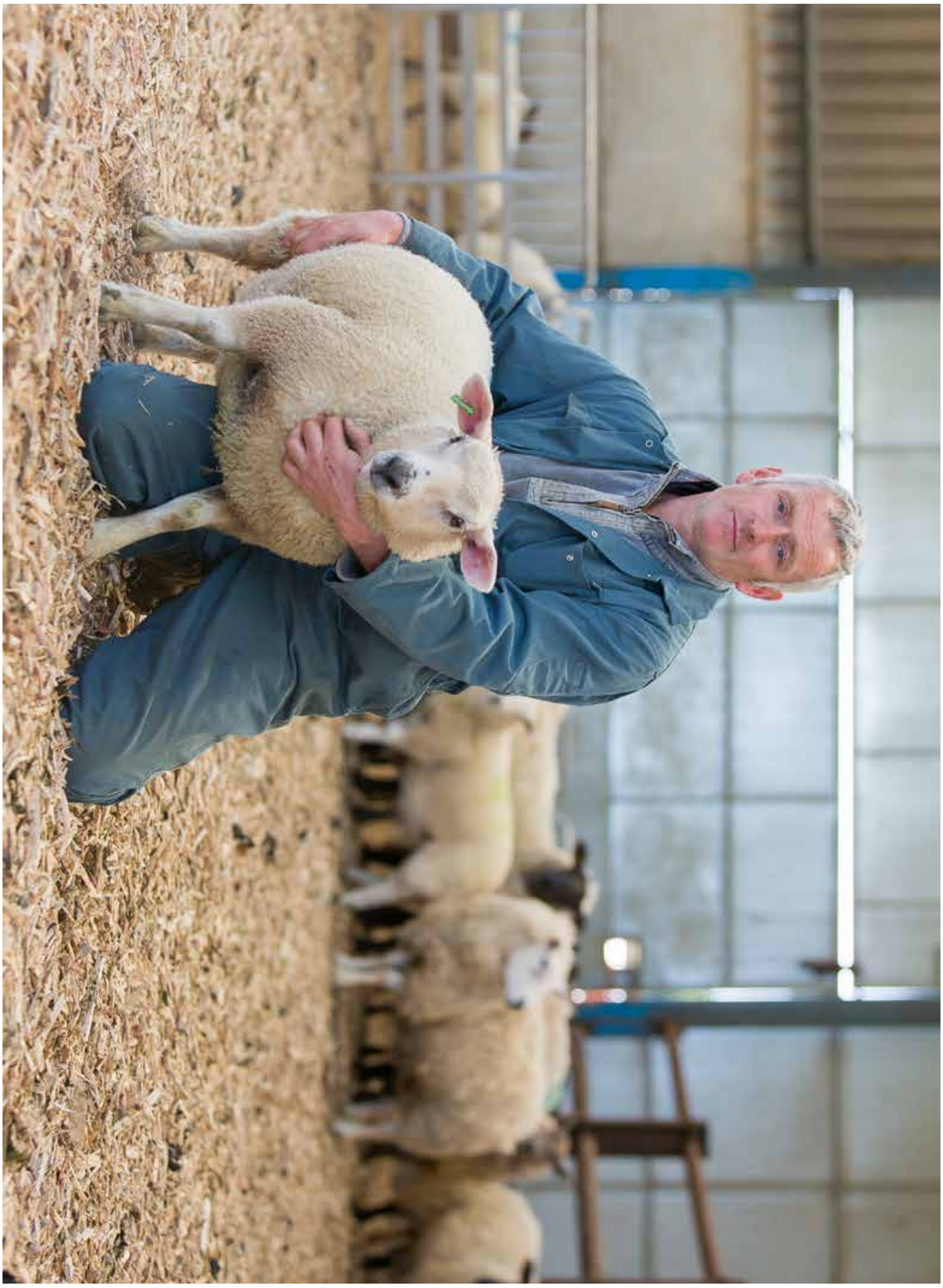
Such surveys suggest – with some caveats – that there is an appetite for people to buy food produced locally.[9] especially if there is a degree of price parity and product equivalence (it is possible to imagine British apples having a market in the UK, but we will not have British bananas). People may like local produce for a variety of reasons, but they also recognise that purchasing decisions have a role in supporting the UK economy. Communications from retailers therefore have the potential to sway consumers if they emphasise these wider benefits.

A number of reports over the last few years have examined in depth peoples' attitudes to food, and the challenges around the food system in the future.[10] These reports indicate that consumer understanding of some of the challenges facing the food system is low, but when consumers learn about the challenges facing the food system and its sustainability, they often respond by saying they'd be willing to change their purchasing habits, and/or seek reassurance that government and industry are 'doing their bit' to manage the future to reduce the risks. ▸

[8] Morrisons commissioned a YouGov plc survey that polled 2038 adults 20-23rd January 2017; samples are representative of the UK population. The question discussed here was asked in three forms 'If imported food prices XXXX as a result of Britain leaving the EU, how likely would you be to buy (more) British food?' where XXXX was 'went UP' or 'went DOWN' or 'STAYED THE SAME'.

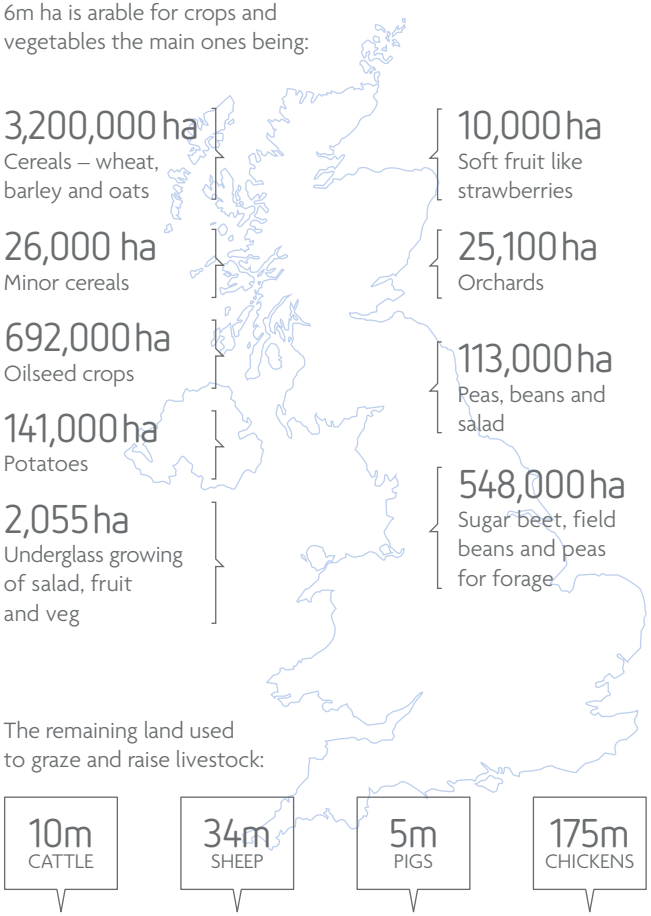
[9] What is meant by 'locally produced' is often malleable, and the benefits of local depend heavily on context (place, product, season, production). However, the 'cultural' appetite for local food seems strong.

[10] Global Food Security Programme: 'Exploring Public Views' (2012) http://www.foodsecurity.ac.uk/assets/pdfs/gfs-exploring-public-views.pdf; Which? Future of Food Report 2013; Food Standards Agency (2016) 'Food Futures' https://www.food.gov.uk/sites/default/files/our-food-future-full-report.pdf



70% (17M HA) OF UK LAND AREA IS USED FOR AGRICULTURE OF WHICH:

6m ha is arable for crops and vegetables the main ones being:

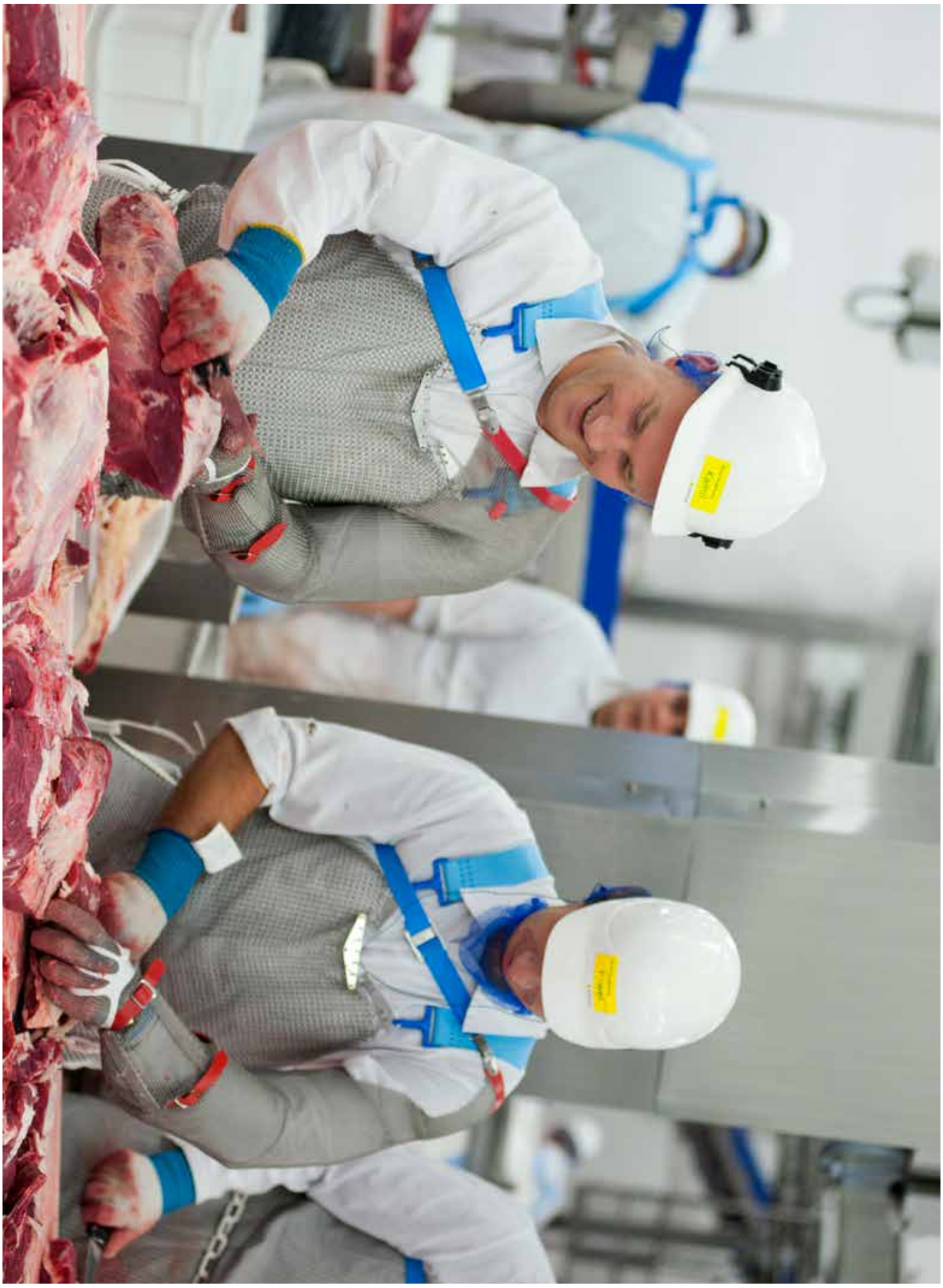


The remaining land used to graze and raise livestock:

10m	34m	5m	175m
CATTLE	SHEEP	PIGS	CHICKENS

When exposed to greater understanding of the challenges, many focus group participants in a study by Which? 'began thinking more about where their food has come from and how it has been produced, considering changing the balance of what they eat (e.g. less meat or dairy or more fruit when it is in season) and reducing how much food they waste' (p.31) according to the 2013 Which? report. Amongst the report's recommendations for the industry were to support local production and make supply chains more transparent. Furthermore, the recent Food Standards Agency report says (p.4) 'Participants were surprised and concerned to realise they knew so little about the complex global food system. There was a strong desire to know more about the processes that bring food to our tables' and (p.11) 'participants... hoped that the food industry would play a critical role in consumer education, raising awareness of global challenges and empowering consumers to make better decisions about food.'

In conclusion, whilst price and quality are clearly issues for consumers, recent work through attitudinal surveys and public dialogues suggests that purchasing decisions can be influenced by a range of more strategic issues: whether to support the economy, to reduce food chain complexity, or because of the long term pressures on the food system. All the dialogues suggest that consumers have a desire to see the food industry protecting their interests, and playing a role in shaping the food system 'for the best'. 'Supporting local production' and 'explaining decisions better' are both mentioned across the reports. These conclusions must however be tempered with some caveats. Most importantly, the results reported above are based on stated intentions as opposed to actual buying behaviour. What customers say they will do and what they will actually do may be quite different. The complexities associated with dietary choice probably mean that the strategic considerations that we highlight are unlikely to lead to consumers driving a major change in the national diet. They do indicate, however, that a move towards more locally sourced, competitively priced food by the retailers might find favour with the consumer. ■



WHAT'S THE UK'S CAPABILITY?

- 70% of UK land area is used for agriculture.
- While we do not have spare land, we can increase the productivity of our crops.
- Many of the foods we used to produce – mainly fruit and vegetables – we no longer do.
- Capacity sometimes does not exist locally to manufacture more of some foods. Examples include frozen food, poultry (the UK imported 939,000 tonnes of poultry in 2015), and fresh fruit and vegetables where there are very large gaps between what we produce and what we demand.
- To grow capacity requires significant investment in scaling up production.

CHAPTER 6
UK capacity for greater self sufficiency

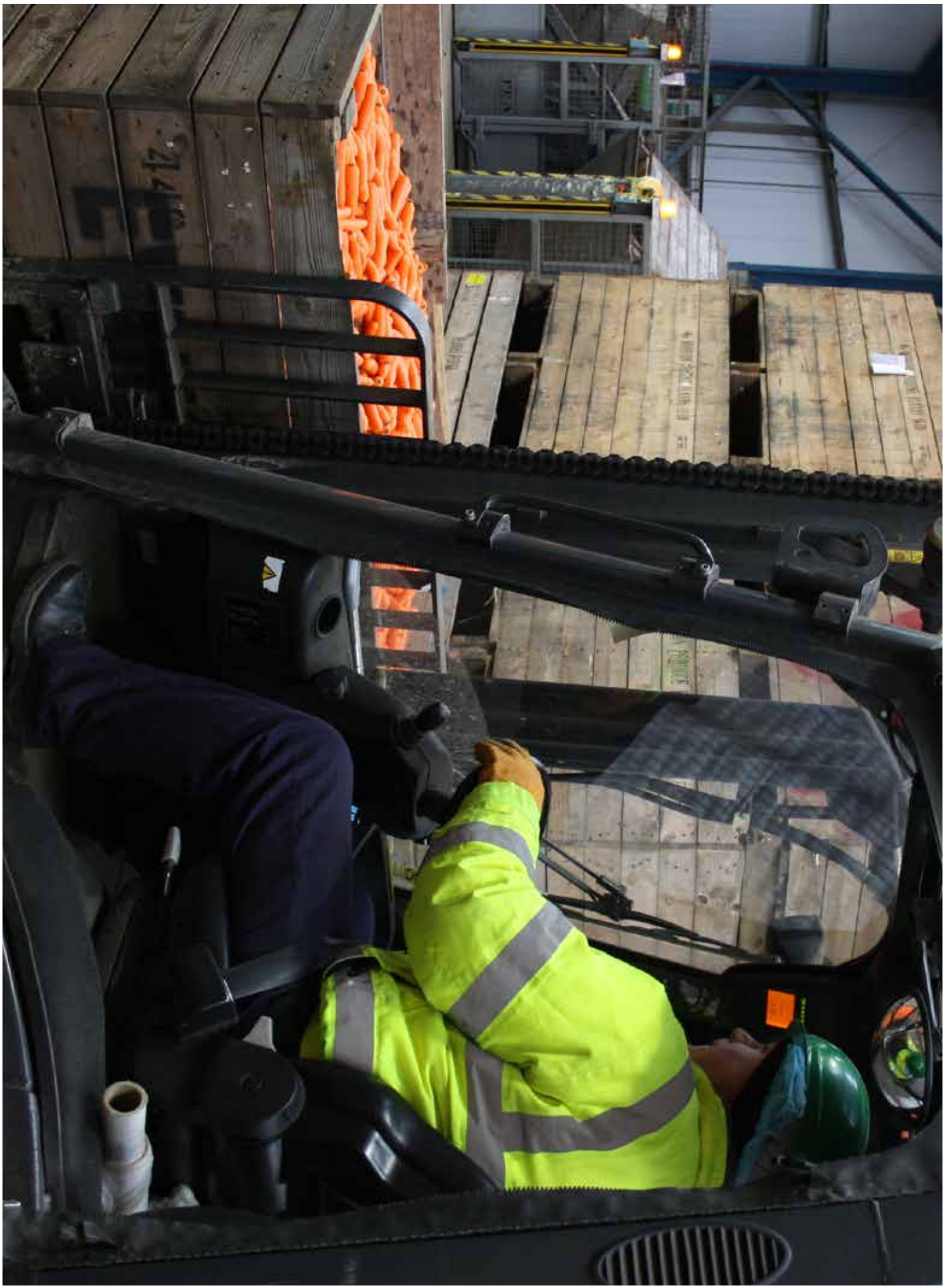
What is the UK's capability to produce more of its own? In particular, does the UK have the breadth of food manufacturing to support greater self-sufficiency?

The UK's agricultural sector in 2016[11] used 17.4m hectares (ha), this is over 70% of the UK land area. Of this, the arable area – for producing crops and root vegetables – is currently around 6m ha. The principal crops grown in 2015-16 were cereals accounting for 3.2m ha, including wheat (1.9m ha), barley (1m ha), oats (137,000 ha) and minor cereals (26,000 ha). Following cereals oilseed crops came next (rape 675,000 ha, with 17,000 ha in linseed and borage), then potatoes (141,000 ha) with a further 548,000 ha used for sugar beet, maize, field beans and peas (mainly for forage), root crops etc. In addition, land was used for orchards (25,100 ha), soft fruit, like strawberries (10,000 ha), and peas/beans/salad grown for humans (113,000 ha), with a further 2,055 ha being under glass for growing salad, fruit and vegetables. In the livestock sector, which uses the larger part of the land area for grazing and silage, the 2015-16 UK herd was just over 10m cattle and 34m sheep. A further 5m pigs and 175m chickens typically live inside and largely eat feed rather than utilise pasture. This figures indicate the specialisation of a modern agricultural economy: wheat, barley, rape, potatoes, oats, cattle, sheep, pigs and chickens.

Historically, the UK farming sector was considerably more diverse as we produced more food, such as fruit and vegetables, and relied less on imports. In 1951, orchards covered 113,000 ha; the area declined to a low of 22,000 ha in 2009.[12]

[11] Defra: Farming Statistics 2016 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/579402/structure-jun2016final-uk-20dec16.pdf

[12] House of Commons Library, Agriculture: Historical Statistics (2016), Briefing Paper 03339 by Yago Zayed.



To exemplify the contraction in what we produce, and our increased specialisation, a 2009 report from the Smith Institute, called Feeding Britain examined changing productivity in the vegetable and fruit sector for 1997-2006. Of the 20 indigenous fruit and vegetables grown they examined, seven increased in productivity (in order: strawberries by 125%, asparagus, apples, plums, carrots, onions and leeks by 3%) and the other 13 fell (French and runner beans by -49%, plus cauliflower and broccoli, Brussels sprouts, peas, parsnips, swedes, turnips, cabbage and lettuce, tomatoes, cucumbers as well as rhubarb and pears). Whilst historically we grew a wider range of produce, market and climate changes allow parts of the UK to now grow a range of crops previously unlikely: figs[14], grapes for wine, chillies[15] and so on. In recent decades, whilst large farms have concentrated on large scale production, smaller farms have often diversified and part of this has been growing produce for local markets (including farm shops, box schemes), as well as producing local, or 'artisanal' food, including cheeses and cured meats.

The UK has, therefore, the potential to grow a greater range of products and supply a variety of markets (whether mass markets for vegetables, or local or niche markets for small scale artisanal cheeses). We do not however have any spare land in the UK for food production. If we are to increase the diversity of food production without increasing our reliance on imports for our existing products, we need to invest in sustainable improvements in the productivity of these crops too. The shorter food supply chains which result from local sourcing can contribute to this. Shorter supply chains bring greater opportunities for vertical integration. With this comes a closer relationship between primary producer and food consumer as well as greater opportunities for sharing good practice, and the reduction of food waste, and its environmental footprint – often of concern to producers and consumers alike[16]. Retailers have a key role to play here: driving improvements in profitability and ensuring that these are rewarded by delivering value back to the primary producer.

Underinvestment in the sector has also occurred because of the tendency to believe that we can increasing rely on food imports. In the last decade recognition that this is not the case has led to a resurgence in interest in the agri-food sector for careers, though significantly more can be done to stimulate the growth of human capacity in the sector[17]. The UK governments have invested significantly in promoting innovation in the area (notably thorough the UK's Agri(food) technology strategy[18]. However, whilst there may be potential, from a strategic perspective, to support a greater proportion of consumption in the UK of locally produced foods, and there may be human capacity to do it, it will nonetheless be a journey rather than a 'switch'. Part of this is because global trade and local comparative advantage concentrates food manufacture, as well as agricultural production, in favourable locations. So, just as for some crops (e.g. bananas, coffee, chocolate), local production is clearly impossible, local manufacture of some foods is unlikely because the capacity locally does not exist. For example, especially for frozen food, poultry (the UK imported 939,000 tonnes of poultry in 2015), and fresh produce (fruit and vegetables), there are very large gaps between what we produce and what we demand. To grow capacity requires significant investment in scaling up production. ■

[13] The Smith Institute (2009) Feeding Britain http://www.ahdb.org.uk/publications/documents/feedingbritain.pdf

[14] http://www.j-sainsbury.co.uk/media/latest-stories/2013/20130816-the-only-way-is-british-with-essex-grown-figs/

[15] https://www.theguardian.com/lifeandstyle/2012/jul/11/british-farmers-growing-exotic-crops

[16] Food Standards Agency (2016) 'Food Futures' https://www.food.gov.uk/sites/default/files/our-food-future-full-report.pdf

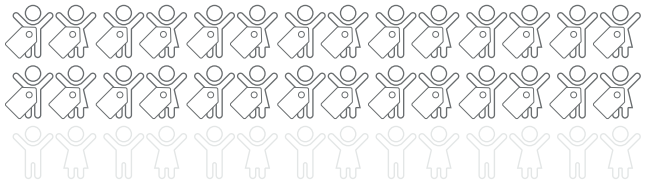
[17] National Council of Universities and Business (2015) Leading Food 4.0: Growing Business-University Collaboration for the UK's Food Economy. http://www.ncub.co.uk/reports/fe-report.html

[18] https://www.gov.uk/government/publications/uk-agricultural-technologies-strategy/uk-agricultural-technologies-strategy-executive-summary

HOW COULD LOCAL FOOD MAKERS HELP?

- An important way to protect against risks in our food system is to diversify and localise the sourcing of food.
- This requires recognition of the benefits of local production to UK society and for local production to find its place in the market.
- Retailers and manufacturers need to think creatively about the range of products that they offer and how they market them.
- It is imperative that talented small food businesses are identified and nurtured.
- Farmers need to be willing to try alternative crops and alternative production systems to support emerging markets.
- Customers can be helped to recognize the wider social values of UK food in order for there to be more of a market for local produce.

IN JANUARY 2016 A FOOD FUTURE PANEL FOUND ALMOST TWO THIRDS OF RESPONDENTS SAID THEY WOULD CHOOSE A BRITISH LABELLED PRODUCT OVER AN ALTERNATIVE.



CHAPTER 7
The opportunity for British food makers

How could the UK's local food makers help?

There is a growing consensus that the global food system is unsustainable in its current form. Reasons for this include growing global malnutrition, often associated with calorie-rich but nutrient poor diets, and the environmental degradation associated with food production (e.g. degradation of soil and water systems, loss of biodiversity, and climate impacts associated with greenhouse gas emissions from agriculture). The complex and highly connected food system carries with it a systemic risk in its response to shocks, at a time when the risk of shocks are increasing,[19] [20] whether from climate or political change. There is a need to think of how the decisions made now – by industry, policy and by consumers and citizens – can transform the food system to deliver better outcomes.[21]

The future of the UK food system that we advocate is a response to the risks and uncertainties of the future. It is not to disengage from reliance on global trade, but to hedge our bets by increasing local production for local consumption. For this to be successful requires changes in mind-sets.

Farmers, manufacturers and retailers must take the bulk of the responsibility. This is because they are in the best position to understand the systemic risk that confronts us. This translates into a business risk for them. As we have argued, in the extreme case, there is a real possibility that international supply chains will collapse. ▸

[19] European Environment Agency (2017) Climate change, impacts and vulnerability in Europe in 2016 http://www.eea.europa.eu/publications/climate-change-impacts-and-vulnerability-2016

[20] Stockholm Resilience Institute Policy Brief on Transnational Climate Change Impacts. https://www.sei-international.org/mediamanager/documents/Publications/Climate/SEI-PB-2016-TCI-insights-for-UNFCCC.pdf;

[21] e.g. the World Economic Forum, which is an international organisation dedicated to the cooperation between the public and the private sectors, recently issued a report on future food http://www3.weforum.org/docs/IP/2016/NVA/WEF_FSA_Futureof-GlobalFoodSystems.pdf

Further we have argued that the best way to protect against this risk is to diversify and localise the sourcing of food. Additionally, increasing the capacity of the system to respond to a shock by improving the use of data will play a role.

This requires leadership and innovation. Retailers and manufacturers need to think creatively about the range of products that they offer and how they market them. Farmers need to be willing to try alternative crops and alternative production systems. These production systems will need increasingly to rely on, and in cases restore, the natural environment to support production, rather than agriculture historically relying on unsustainable methods and depleting nature's 'natural capital'. Innovation amongst primary producers will require investment. This in turn means that they need to be in a position where they secure a greater share in final value of the food that they produce. This will happen if farmers can be more responsive to the demands of consumers, a change which can be catalysed by retailers and manufacturers.

Food manufacturing and retailing is now more concentrated than it has ever been. The industry is however underpinned by some fantastic small and medium-sized enterprises (SMEs) in both primary production and innovative manufacturing. It is imperative that the talented businesses in this sector are identified and nurtured. A concentrated downstream sector can be beneficial in providing the leadership that will enable this.

There are many possible routes for the food industry to support more consumption of local produce beyond highlighting the co-benefits of local production to consumers. These include:

- Developing new business models to support local and small scale production. As an example, upland hill farmers – such as in Scotland or the Yorkshire Dales – often struggle to compete with lowland or New Zealand farmers because of the natural constraints of hills and forage quality. An upland farm provides significant benefits for the environment and society – it can contribute to the natural beauty and recreational value of the area, as well as providing clean water for the local lowlands. For such farms to be sustainable requires selling – 'less but better' lamb at a premium – as trialled with the Cambrian Lamb Initiative[22] – and is a route by which a market for local production, based on promoting the local benefits, can compete.

- Food producers can consider options associated with Redistributed Manufacturing (RDM) of foods to create local jobs and interest in local foods. This might also require policy incentives to overcome the powerful drivers of larger scale.[23]

- Supporting local and emerging enterprises and farms, perhaps through greater risk-sharing between farmers and the food industry (for example, through 'whole crop purchasing').[24]

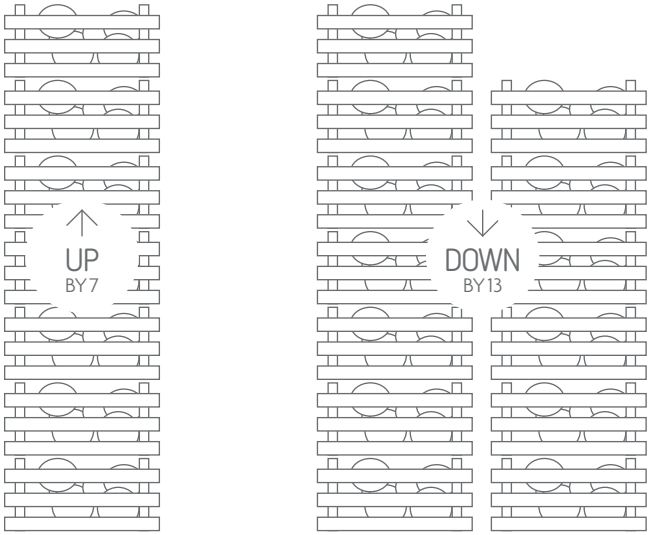
- Finding ways to seek efficiencies to create sustainable competitiveness. In addition to vertical integration from farm to fork, this may include reducing waste, recycling and promoting more circular economies through horizontal integration: one farm's waste is another institution's resource.

[22] http://cambrianmountainslamb.co.uk/

[23] Local Nexus Network Food Feasibility Study: Final Report. http://localnexus.org/wp-content/uploads/2015/04/LNN-Food-Feasibility-Report-final-for-web.pdf

[24] Product Sustainability Forum. Action Plan: Securing Crop Supply through Whole Crop Purchasing. http://www.wrap.org.uk/sites/files/wrap/WCP%20Action%20Plan%20-%20finalv1.pdf

CHANGING PRODUCTIVITY BETWEEN 1997 AND 2006 OF 20 INDIGENOUS FRUIT AND VEG EXAMINED IN A REPORT



Changing the food system to create more market for local produce requires the support of customers, who buy and consume the produce, even if they do not drive change. In some recent public dialogues, respondents comment on the lack of connectivity between consumers and food,[25] a national conversation about the wider attributes of consumption of UK-produced food that are not currently well reflected in the market and in food-buying culture. For example, in France, there is a strong cultural relationship between locally produced food – and the terroir[26] – quality and gastronomy. This underpins a cultural appreciation of food 'quality' over 'quantity' and partially explains lower rates of obesity in France than in America (Bellisle, 2017). Increasing dialogue with consumers about the future of the UK food system and the co-benefits for the UK may feed-back positively on buying habits. ■

[25] ibid

[26] 'Terroir is a mix between a geographical definition and a cultural one. It is a geographical area with specific geological, hydrological, soil and climate characteristics. But it is more than that. The terroir has a strong cultural side. It is the reflection of the human societies that work its land. Different societies produce different terroir with the same territory. The notion of terroir is strongly linked with agricultural production. Indeed, agriculture is also the reflection of the natural conditions and the ways human societies work with them. Making the most of one's land is the common goal of farmers and the heart of the notion of terroir.' http://frenchfoodintheus.org/1034 (accessed Jan 25 2017).

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THE COFFEE STOP

- The UK can never – and should not aim to be – self-sufficient in food production.
- However, it makes sense to hedge our bets and build a more resilient system, by growing our local production to provide more food, and more diverse food, to the nation.
- This will protect our farming economy, our environment, and lead to more clarity about where our food comes from.

Professor Tim Benton
Dean of Strategic Research Initiatives, University of Leeds, and Distinguished Visiting Fellow, Royal Institute of International Affairs, Chatham House.

Conclusion

A globalised food system drives efficiency, scale and specialisation and, in turn, drives diets towards the commodity crops – calorie rich but nutrient poor – with its implications for health. Increased productivity has led to the degradation of soils, loss of biodiversity, and homogenisation of the countryside. Increased imports means that often, in return for cheaper food, we 'export' the environmental costs of production. Furthermore, over-reliance on global markets has led to a situation in which there are some inherent systemic risks in the system the magnitude of which are only just coming to light.

The UK can never – and should not aim to be – self-sufficient in food production. However, it makes sense to hedge our bets and build a more resilient system, by stimulating, incentivising, protecting and growing our local production economy to provide more food, and more diverse food, to the nation. Whilst this has costs, it also has multiple benefits. It protects our farming economy, especially family and small-scale farming; it protects our environment by stimulating heterogeneity; it is more transparent (as people can identify visually and viscerally with where the food comes from); it creates a diversity of food; and it stimulates small-scale innovation as well as large-scale – such as to produce local cheeses, ice cream, yoghurts, salami, veg boxes – to supply farmers markets, restaurants and retail. It also has the potential to increase the vibrancy of primary food production in this country, delivering a greater share of value to the farmer and creating a virtuous circle of improved productivity, sustainability and resilience. ▸

To stimulate more local production for the multiple benefits is not an argument to replace large-scale agriculture with a vision of 'small scale, local, organic' production. It is simply to recognise, that for many reasons beyond technical, narrow-sense efficiency (and therefore production at the lowest possible cost), the future of the UK's agri-food sector, and our rural economy and landscapes, is better placed if we have a greater diversity of products produced, and sold, in a diversity of ways.

Our vision is for a modern, diverse and innovative agri-food sector. It is not a vision of warm beer, village greens and rural idylls. Our farmers should further embrace appropriate technology, compete as businesses, share best practice and recognise that current practices are often not sustainable. Food processors and retailers must also recognise that the current approach is risky, for them, for their customers and for their suppliers, home and abroad. They must also play their part in driving innovation across the food system and ensure that those that innovate are rewarded for it. The biggest gains in efficiencies in food production will be obtained by better integration of the food chain. This also means by more intelligently connecting supply and demand.

Finally, whilst there are uncertainties associated with the future of the food system, there are also opportunities. The food system needs transforming, but, as it is a complex system, theory suggests it can only be optimised when it is optimised as a system to deliver its three major goals: a healthy economy, healthy population and a healthy environment. To do this requires significant leadership, and a 'national conversation' with citizens and food consumers on the one hand, and policy on the other: what do we, as a society, want from our food system and our countryside? Retailers have a significant role to play in leading the national conversation and shaping the system to better link sustainable consumption with sustainable production in ways that minimise the systemic risks. ■

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